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Children's Level of Aspiration as a Function of Test Anxiety, Success Versus Failure Experiences, and Praise Versus Nonresponsiveness from Adults.

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Investigated were the effects of test anxiety, success-fail experiences, and social reinforcement on the aspiration level of third and fourth grade subjects (Ss) in a suburban school system. Data were sought on whether high test anxiety (HTA) children would have lower aspiration levels than low test anxiety (LTA) children. Also studied were the effect on each group of social reinforcement. Another purpose of this research was to ascertain whether there were correlations between anxiety and academic performance (as measured by report cards), and test anxiety and measures of achievement motivation. The research design and the experimental manipulations are described and the statistical correlations are presented. Major finding s show that: (1) success in pretraining raised Ss initial aspiration level slightly and failure substantially lowered it; (2) aspiration level increased sharply following social reinforcement but remained stable under non-reinforcement; and (3) girls showed a higher overall increase in level of aspiration than boys. A discussion section notes some other aspects of this research. (NH)

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Children's Level of Aspiration as a Function of Test Anxiety, Success versus Failure Experiences, and Praise versus Nonresponsiveness from Adults

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The present study focused on the effects of test anxiety, success-failure experiences, and social reinforcement on children's level of aspiration. Earlier longitudinal research (Sarason, Hill, & Zimbardo, 1964; Hill & Sarason, 1966) has indicated that high levels of test anxiety are increasingly related to low levels of intelligence and achievement test performance and school progress across the elementary school years. One of the consequences of the high test anxious (HTA) child's increasingly poor intellectual and academic performance should be a lowering of his level of aspiration. One of the hypotheses tested in the present study, then, was that middle-elementary-school-age HTA children would have lower levels of aspiration than low test anxious (LTA) children.

Success-failure experiences in pretraining and social reinforcement during the experimental task were expected to influence Ss' level of aspiration in their own right and in interaction with test anxiety. Crandall and her colleagues (Virginia Crandall, 1963; Virginia Crandall, Good, & Vaughn Crandall, 1964) have demonstrated that eighth grade boys' level of aspiration increases following social reinforcement from an adult but does not change when the adult is non-responsive. In addition, Rao and Russell (1960) have reported that success in pretraining tends to raise and failure in pretraining substantially lowers children's level of aspiration. It was expected that these findings would be replicated for the middle-elementary school age boys and girls in the present study.

UD 005 440

The HTA child's history of poor intellectual and academic performance should not only lead to a predominantly low level of aspiration but should also make it more difficult to make these children believe they have been successful and to raise their achievement aspirations than for LTA Ss. It was thus expected that success would be less effective in raising and failure more effective in lowering the level of aspiration of HTA than LTA children, similar to the findings of Davids and White (1958) for emotionally disturbed and normal children. It might also then be expected that social reinforcement would raise the higher and more flexible achievement aspirations of LTA Ss more than those of HTA children.

A secondary purpose of the present study was to correlate test anxiety with academic performance as measured by teachers' report card evaluations and with measures of achievement motivation.

Method and Procedure

The total sample included 62 boys and 70 girls comprising the third and fourth grades of a suburban school system of Champaign-Urbana, Illinois. The Test Anxiety Scale for Children (TASC) and Lie Scale for Children (LSC) (see Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960) and the Defensiveness Scale for Children (DSC, see Sarason, Hill, & Zimbardo, 1964) were administered to the sample approximately two weeks prior to the experimental testing. The 10% of the children with the highest combined defensiveness scores as measured by the LSC and DSC were excluded from the experimental sample due to the doubtful validity of TASC scores of such children, as a partial control for defensiveness. The 96 Ss for the experimental sample were chosen at random from the remaining children with the restriction that an equal number of boys and girls with TASC scores above and below the median TASC score for the sample were selected. There were two male Es (the authors).

Children were randomly assigned to one of three pretraining conditions involving success, failure, or no evaluative experiences. Success and failure were manipulated in pretraining by exposing the children to one of two sets of 10" x 10" formboard like puzzles employed in earlier research (e. g. Stevenson & Hill, 1965). One pair of puzzles (Success Condition) consisted of approximately 30 rectangular pieces that fit inside the frame of the puzzle board interchangeably. It had been found that elementary school age children complete these puzzles with ease, and all Ss did so in the present study. The other pair of puzzles (Failure Condition) each consisted of 11 pieces of irregular shapes that fitted into the puzzle board in only one precise, interlocking pattern. It had been found (Stevenson & Hill, 1965) that these puzzles appear solvable to elementary school age children, but no child has actually completed them within the time limits (two minutes each) allowed. In the third pretraining condition (Neutral Condition), children entered the experimental situation directly without success or failure experiences prior to the experimental task.

An equal number of Ss in each group were randomly assigned to one of two reinforcement conditions in an angle matching task used to measure level of aspiration. This measure and procedure were adapted from the earlier research of Crandall (Crandall, 1963). Children were first presented an 8 1/2 x 11 inch sheet with a bar graph depicting "the performance of 16 children," composed of 16 bars whose height decreased in 15 equal steps across the sheet. A stick figure representing "each child" whose performance was being depicted was drawn below each bar. It was explained to S that the height of the bar represented how well different children the same age as S had done on the tasks at which S would be performing. The child's initial level of aspiration was obtained by asking S to draw a circle around the child (stick figure) he would turn out to be when his performance was compared with other children his age. This initial

level of aspiration was obtained immediately following the pretraining task or, for children in the Control Condition, immediately upon entering the experimental situation. The Ss then performed at the experimental task, in which the S was shown eight cards, one at a time, on which angles of varying degrees of acuity were drawn. The S was asked to match each of these comparison stimuli with one of the five angles serving as standard stimuli. The four different comparison angles ranged from 45° to 75° in 10° intervals. Each comparison angle fell midway between two of the standard stimuli, so that it was impossible for Ss to accurately match each comparison stimulus with a single standard stimulus. As the child performed at the angle matching task, E either performed a supportive role by praising the child after each selection ("that's good," "that's fine," "you're doing well") or played a neutral, non-responsive role throughout the experimental task. The second level of aspiration was then obtained, the child being told: "Now that you have performed at the task, how well do you think you have done compared to other children your age?" A bar graph identical to that used for the initial level of aspiration was used for this final level of aspiration.

These procedures resulted in a 2 (Sex of S) x 2 (TASC Level of S) x 3 (Pretraining Condition) x 2 (Reinforcement Condition) x 2 (Experimenters) mixed factoral arrangement with two children in each cell. In addition to the 96 children in the experimental sample, the remaining children present on the days of testing were run in the Neutral Condition (being given the first level of aspiration only, followed by several reinforced trials at the angle matching task) at the request of school personnel so that these children could take part in the study. The initial level of aspiration of these Ss was comparable to that of the 32 control Ss in the main study, making possible a more complete analysis of the relation of TASC to initial level of aspiration.

In addition to the experimental data, each child's school grades were available from the year-end report cards.

Results

Major Findings: a 2 (Sex of S) x 2 (TASC Level of S) x 2 (Experimenter) x 3 (Pretraining Condition) x 2 (Reinforcement Condition) analysis of variance of the initial level of aspiration scores revealed two significant main effects. The significant ($F = 3.68$, $df = 2/48$, $p < .05$) Pretraining Condition effect reflected the fact that, as expected, success in pretraining raised slightly Ss' initial level of aspiration (10.37) and failure substantially lowered it (8.45) compared to Ss in the Neutral Condition (10.22) without pretraining experiences. There was also a significant experimenter effect ($F = 5.51$, $df = 1/48$, $p < .05$) with the E having more testing experience (the first author) obtaining higher levels of aspiration ($\bar{X} = 10.44$) than the less experienced E ($\bar{X} = 8.91$). There were no other significant effects in the analysis of initial level of aspiration scores.

A 2 (Sex of S) x 2 (TASC level of S) x 2 (Experimenter) x 3 (Pretraining Condition) x 2 (Reinforcement Condition) analysis of variance was carried out on difference scores, computed separately for each subject, measuring the change in level of aspiration from the initial testing to the post-experimental period testing. Results bearing on the three findings in this analysis are present in Table 1. As can be seen, the highly significant reinforcement Condition effect ($F = 13.56$, $df = 1/48$, $p < .001$) reflects the fact that

Table 1. Change in level of aspiration for boys and girls following social reinforcement and nonreinforcement in the experimental (angle-matching) task (N = 24 in each group).

	Social Reinforcement	Nonreinforcement	Combined Conditions
Boys	.88	-.08	.40
Girls	3.12	-.04	1.54
Combined Sexes	2.00	-.06	.97

level of aspiration increased sharply following social reinforcement but remained stable under nonreinforcement, the same result obtained by Crandall in her earlier studies (Virginia Crandall, 1963; Virginia Crandall, Good, & Vaughn Crandall, 1964). The Reinforcement Condition did not, however, interact with either Pretraining Condition or TASC level of S. The significant ($F = 4.18$, $df = 1/48$, $p < .05$) sex of S effect reflects an unexpected sex difference, with girls showing a higher overall increase in level of aspiration than boys. The interaction of Sex of S and Reinforcement Condition which just failed to research significance, ($F = 3.88$, $df = 1/48$, $p < .06$) helps clarify these effects. As can be seen in Table 1, girls showed greater increases in level of aspiration following social reinforcement than boys, with neither sex showing any change in level of aspiration following nonreinforcement. No other effects were significant in the analysis of variance of change in level of aspiration.

Additional Findings

The 14 boys and 22 girls run in the neutral condition in addition to the 16 experimental subjects of each sex made possible a more refined analysis of the relation of TASC and defensiveness to the initial level of aspiration than the median split on TASC used in the experimental study. Four groups of children of each sex, including 24 boys and 28 girls were selected on the basis of TASC and combined LSC and DSC scores based on the four possible combinations of scores above and below the median of the two measures: (a) HTA, High Defensive (HD); (b) HTA, Low Defensive (LD); (c) LTA, HD; and (d) LTA, LD. A 2 (TASC level of S) x 2 (Defensiveness Level of S) analysis of variance of initial level of aspiration scores was run separately for each sex. These analyses revealed a significant ($F = 17.10$, $df = 1/24$, $p < .001$) TASC effect for girls but not for boys. The LTA girls showed the expected higher initial level of aspiration scores than HTA girls. The Defensiveness Effect and TASC x Defensiveness interaction were not significant for either sex.

Correlation analyses revealed a significant negative correlation between TASC and the average school grade for both boys (r = -.37, p < .01, N = 62) and girls (r = -.43, p < .001, N = 70).

Discussion

The expected tendencies for failure in pretraining to lower the children's initial level of aspiration and social reinforcement during the experimental task to strikingly raise children's level of aspiration were obtained, although these effects did not interact with the children's level of Test Anxiety. Nor was test anxiety related to initial level of aspiration in the experimental sample. The latter finding may be due to the fact that the median split on TASC used to define LTA and HTA groups for the experimental sample was not a sensitive enough procedure to test the effects of test anxiety. This possibility was enhanced by the finding that for girls, at least, although there was no TASC effect in the experimental sample, LTA girls did show significantly higher initial levels of aspiration than HTA Ss when patterns of anxiety and defensiveness were taken into account, through the use of both experimental and non-experimental subjects. It should be noted that a median split on TASC scores was sufficient to demonstrate differences between LTA and HTA Ss in performance at a simple motor task as a function of success-failure in pretraining and social reinforcement (Hill, 1967).

The analysis of change in level of aspiration across the experimental period extended the previous work of Crandall (Virginia Crandall, 1963; Virginia Crandall, Good, & Vaughn Crandall, 1964) with eighth grade boys down to the third and fourth grade children while using somewhat different operations, and also revealed an unexpected sex difference. In the present study the tendency for social reinforcement to raise level of aspiration was stronger for girls than boys. In the present study two male Es tested Ss. In the Crandall studies

female Es tested the male subjects. There are several possible alternative explanations of the present sex of S differences and the effects with older males found by the Crandalls. First, there could simply be a sex of S difference: girls may be more responsive than boys to social reinforcement at both age levels. It would then be predicted that eighth grade girls would show stronger increases in level of aspiration following social reinforcement than those shown by eighth grade boys in the Crandall studies. Evidence supporting this hypothesis is reviewed by Vaughn Crandall (1963). A second possibility is that children increase their level of aspiration more strongly when Es of the opposite sex have been supportive than when Es of the same sex have delivered social reinforcement. In the present study with male Es, girls responded more strongly than boys, and it is possible that eighth grade girls would respond less strongly to female adults than the eighth grade boys tested by female Es in the Crandall studies. Support for this possibility comes from the presence of such a cross-sex effect in studies of children's performance at simple motor tasks under social reinforcement (Hill & Stevenson, 1965; Stevenson, 1961, 1965). It also could be, of course, that both a sex of S and an interaction between sex of S and sex of E occur, or that there is an age change in one or both of these effects with respect to the influence of social reinforcement on level of aspiration. Dale Soderman and I are presently testing some of these possibilities in a study in which the level of aspiration of fifth grade boys and girls tested by male and female Es is being studied as a function of social reinforcement, nonreinforcement, and criticism. It is hoped that this study will clarify the sex difference in level of aspiration obtained in the present study, as well as to further clarify previously obtained interactions between the sex of S and sex of E in the effects of social reinforcement (see Stevenson, 1965).

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